

# Chinese number system



**ASSIGN  
BUSTER**

China-Nim The Chinese had one of the oldest systems of numerals that were based on sticks laid on tables to represent calculations. The Chinese system is also a base-10 system, but it has important differences in the way that the numbers are represented. The rod numbers were developed from counting boards, which came into use in the fourth century BC. A counting board had squares with rows and columns. Numbers were represented by little rods made from bamboo or ivory.

A number was formed in a row with the units in the right-hand column, the tens in the next column, the hundreds in the next, and so on. Rather than putting as many as 9 rods in one square, one rod placed at right angles represented five. One problem with this system was that the rods in one square could get muddled up with the next square. So the system puts the rods representing tens a different way up. When we get to the hundreds, they return to the same way as the units. The thousands are the same way up as the tens, and they carry on alternating.

If you have no value for one column, such as the tens, you leave a space. There is no zero. The spaces would start to be a problem if you had several columns with nothing in. It really is useful to have a zero with a positional system like this one. This system is positional, as there are the same symbols for the hundreds as the units. It's their position which tells you that they are hundreds. Then there is the strange rotation between units and tens, and tens and hundreds, so it's really a base 5/10/100! There is something strange about five.

In most bases, five would be represented by the new symbol (in this case a horizontal line). But this might get confused with a single rod in the tens column, which is also a horizontal line. So five is represented by five rods. The horizontal line isn't used until six, where it is combined with a vertical rod, which is unambiguous. The counting rods were an early form of the eastern abacus. It is said that the Chinese invented the numeral system and were adding, subtracting, multiplying and dividing before anyone else with the use of bamboo rods.

Merchants, scholars, monks and court officials carried these rods and used them like calculators, placing them on boards or on the ground. By putting one to five rods in various positions, the ancient Chinese invented a notation that with the knowledge of only nine signs, any number could be expressed. The game that we have chosen to share with the class is a very simple game called Nim. First, you must place only one piece in each circle. Each person can remove one or two pieces from any row or “heap”, as the Chinese called them.

You can't remove pieces from more than one row (heap) at a time and you also cannot “pass” when it's your turn, you must pick up a piece. The player that wins is the one who removes the last piece. Sources Used:

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